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The capacity of an aircraft spray tank is usually indicated by its name. For example, VAP-250 is an aircraft spray tank of 250 liters capacity of any liquid; VAP-500 is an aircraft spray tank of 500 liters liquid capacity; VAP-1000 is an aircraft spray tank of 1000 liters liquid capacity. The same applies for the various sizes of all-purpose aircraft chemical spray tanks (UKhAP).

Sizes of the above-mentioned equipment vary as follows: Length from one meter 10 centimeters to 2½ meters; height from 50 centimeters to one meter; width from 45 to 75 centimeters.

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The method of suspension from an aircraft is the same as for bombs, when a bomb rack 21 (ДЕР-21) or a bomb rack 34 (ДЕР-34) is used. The bomb rack 34 (ДЕР-34) is for 500 liters capacity and higher.

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2.

The discharge time varies from 2.5 to 8 or 10 minutes, depending on the instructions. The pilot can regulate the discharge time in accordance with his mission assignment.

3.

There is a definite formula for area of coverage. coverage depends on the following factors:

(a) Altitude of the flight.

(b) Wind velocity.

(c) Air temperature.

(d) Specific gravity of the liquid

(e) Speed of the flight

All of the above factors have to be considered before a desired area coverage can be arrived at.

4.

Any aircraft which is equipped with a bomb rack is suitable. However, frontal aviation aircraft such as IL-2 or IL-10 would be most suitable.

5.

A dual control system is used; i e, electrical and mechanical.

6.

Control cables and bomb racks are made of steel. The tanks are made of a mixture of aluminum and some other metal

7.

All above-mentioned items of equipment function as expected. There are cases of failure but they are very rare.

8.

The rate of ascent and descent, with empty tanks filled, is the same as it would be with bombs. This equipment is suitable for use at various altitudes from 20 meters up, depending on weather conditions, wind velocity, force of gravity of the chemicals, the objective, and the result desired. The temperature has very little influence on such chemicals as mustard gas, lewisite and tabun because of their long-lasting qualities. Ideal spraying time, of course, is early in the morning and early in the evening because the winds are not very strong at those hours. the speed of flight at the time of spraying should be about 280-285 kilometers per hour.

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9.

Fuzes are not used with any aviation firing equipment. Aviation firing equipment consists of a spray tank and a gas cylinder containing special liquid which is released simultaneously with the liquid in the spray tank. On the way down, the two liquids mix and the mixture ignites.

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The air chemical bombs are sometimes equipped with instantaneous fuses and at other times with time fuzes, depending on the desired result. There are also fuzes which are set to go off at a given altitude. The following designations show the three most common fuzes which are used on chemical bombs: APUV-1(ATUVB-1); APUV-4 (ATUVB-4) and MAPUV-1 (MATUVB-1).

10.

Control of the chemical bombs does not present any problem different from the control of any other bomb. They are hung on the same bomb racks and look the same with the exception that chemical bombs have colored stripes painted on them.

11.

Loading and ground handling is accomplished with the aid of mechanized forklifts and trucks. Sometimes these bombs are loaded into the aircraft by hand, particularly when it is easier to do so.

12.

Ground clearance varies with the type of bomb or spray tank used For example, KHAB-500 (XAB-500) will hang closer to the ground than KHAB-250 (XAB-250) will because the first one is larger. Ground clearance will also depend on the type of aircraft used.

13.

14.

Personnel of the Soviet Air Force learn abou the following poison gases: Mustard gas, lewisite, adamsite, phosgene, hydrocyanic acid, brombenzylcyanide, diphenylcyanarsin ([illegible]), tabun or "TC", and other gases

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The characteristics of these various gases are as follows:

(a) Mustard Gas - An oily liquid of dark yellowish-brown color with a garlic and mustard odor. It is a persistent poison which is fully effective for over 24 hours in the summer time, and from 72 to 120 hours if sprayed in the woods in shaded areas. During the cold season, it lasts still longer. About 24 hours after coming in contact with it, mustard gas causes small pimples full of yellow pus. These pimples burst in two or three days and will take about a month

to heal. The fumes affect the eyes, breathing organs and cause skin rash. If taken internally, as with poisoned vegetables and such, it causes very serious illness.

Mustard gas can be spread with aerial bombs, artillery shells, mines, or aerial spray tanks.

(b) Phosgene - Phosgene is a colorless gas with the odor of musty hay. It can be used in aerial bombs, artillery shells, mines, or can be sprayed from a gas cylinder or gas bottle. At the instant this liquid is exposed to air, it turns into gas which looks like smoke or a cloud. In an open area these clouds can last 10 to 20 minutes, while in a forest they might last from three to four hours. When inhaled phosgene causes the heart to beat faster, frothy coughing and makes the victim feel generally weak.

(c) Hydrocyanic Acid - A colorless liquid which smells like almond or a cherrystone, although this odor is very weak. It affects the victim's blood and nervous system. When inhaled, it causes numbness in the mouth, headache, heartache, nausea and vomiting. Later, breathing becomes irregular, the victim goes into convulsions, loses consciousness and dies.

(d) Brombenzylcyanide - A cloudy-red, oily liquid with a pleasant and, at the same time, irritating almond odor. It causes eye irritation, or burning, and sharp pain in the eyes. It gives the victim a photo phobia. The eyes become red and puffed up. Soon after the victim gets out of the gassed area, all of the gas effects disappear.

(e) Diphenylcyanarsin - A poisonous smoke which affects upper breathing organs. Prolonged exposure to this gas will cause death. First symptoms are irritation of the nose and throat. It causes sneezing and pain in the chest, jaws and the gums. These irritations continue to get progressively worse for about an hour after the victim leaves the gassed area, and the effects disappear only after about six hours from the time the victim was exposed to the gassed area.

(f) Tabun or "TO" Liquid - A dark oily liquid substance like tar, almost odorless. Tabun is very persistent gas. It will retain its original qualities for several months in below freezing temperatures. For example, if sprayed in the autumn before snowfall, and later covered with snow, tabun will be just as poisonous in the spring when the snow melts away. A drop of tabun on bare skin will burn the flesh to the bone. Its vapor causes irritation in the eyes, nose and throat. The slightest amount, when taken internally will cause serious stomach trouble.

Tabun can be spread by mines, artillery shells, aerial bombs or aircraft spray tanks.

(g) Lewisite - A brown oily liquid which smells like geraniums. It is classified as a persistent gas. Lewisite causes a skin rash similar to that caused by mustard gas, but a little more serious.

15.

[redacted]

[redacted] There are several channels through which personnel are funneled into the chemical warfare service. One of these channels is when VVS receives young officers directly from the military chemical schools and academies. Another channel is the reclassification of VVS officers from other branches of the VVS. In the first example, the candidates to the military chemical schools and academies are selected from volunteers of the various branches of military service by the commanders of these volunteers. They are also selected from the civilian volunteers who apply for such schools prior to reaching draft age.

Upon completion of their training, the school assigns graduating officers to the various commands and branches of the military service. Of course it is necessary to keep in mind that the Chief of Staff of Military Personnel in Moscow supplies the school with quotas of personnel to be assigned to various services and commands.

The reclassification of officers only occurs when the demand for officers in the chemical warfare service is greater than the supply. In such cases, the VVS command decides on the number of officers to be retrained for CW service and the school decides on the qualifications of the candidates.

Another procedure for channeling personnel into the CW service is worked out by the Officer Personnel Section. The Directorate of Air Force Personnel sends a directive to the Personnel Section of the Air Army to select a given number of candidates for chemical school. This directive will show the candidates' qualifications. The same procedure is followed down the line to the Corps, Division and Regiment. At times, the Personnel Section of the Air Division will select the necessary candidates but, in most cases, it will direct its subordinate units to do the selecting, in which case the Regimental Commander finally decides who to send. Only the candidates who agree to such a reassignment are selected, and later interviewed by each higher Headquarters up to the Air Army in order to determine the candidates' desires and qualifications.

The military rank of candidates from the regiment are from Junior Lieutenant to Captain inclusive. After finishing the retraining courses, these officers receive the following assignments: Chief of CW of the regiment, Chief of CW of Separate Air Technical Division and Chief of Chemical Section of the Air Army Depot. These officers exercise very little authority and do not have much of a chance for promotion beyond the rank of Captain.

There are no CW schools for enlisted personnel in the Soviet Air Force.

16. [redacted]

[redacted] The Chief of Chemical Warfare Service in the regiment is responsible for all antigas training and for chemical equipment in the regiment. The Chief of Chemical Warfare Service in the Separate Air Technical Division supervises instruction of all personnel in the Air Technical Division and the "OATB" (Separate Air Technical Battalion) on the subject of antigas procedure.

In the OATBs there are two NCOs who guide the rest of the personnel in the antigas procedures. These NCOs are part of the complement of the airfield maintenance platoon of the Airfield Company. The Chief of CW Service of the Air Army is responsible for chemical training and defense of all units of the Air Army.

The Chief of CW of the Separate Air Depot in the Air Army and his assistant are engaged in keeping track of all the incoming and outgoing CW weapons and equipment. They supervise the loading, unloading and proper storage of said weapons and equipment.

The Chief of CW Service of VVS is responsible for chemical training and defense of all units in the VVS. To receive an assignment as Chief of CW in the Air Army of VVS, the officer must first go through the other CW Service positions in lower commands.

17.

some officers are acquired by commissioning graduates from various institutes who majored in chemistry. While still in school, the students are given deferment provided they take the required courses. After graduation, they go into the Air Force and are given direct commissions.

18.

chiefs of CW Services receive command instructions, relative to CW, directly from their immediate commanders. For example, the Chief of Chemical Warfare Service of the Air Regiment receives his instructions from the commander of the regiment, and the Chief of CW Service of the Air Army receives his from the commander of the air army.

The channels for disseminating information of a technical nature are from the Chief of CW at higher Hqs to the Chief of CW at lower headquarters.

19.

There are no special chemical warfare service units in the regiment. Loading of toxics is done by the armament specialists under the supervision of the Chief of CW Service of the regiment. These same armament specialists set the fuses on chemical bombs, load the aircraft and otherwise handle all such equipment. In the air depots of the air armies enlisted personnel work in the chemical section under the supervision of either the chief or his assistant, both of whom are chemical specialists. These enlisted personnel, however, perform other duties not connected with the chemical warfare service.

20.

There is no connection between the VVS Chemical Warfare Service and the Soviet Army Chemical Warfare Service up to and including the air army. the existence of such a connection above the air army level. In a military chemical institution such as the Volsk Higher Chemical School for Officers, which is under the Directorate of the Soviet Army, officers of the air force will also be found. The relationship among the officers of different branches is normal.

21.

The air regiment receives all its CW supplies and weapons from the Separate Air Technical Battalion. The SAT Battalion receives its supplies and weapons from the Air Technical Division, and the ATD receives them from the air army, while the air army receives them from either the central VVS depot or the factory, depending on which of the two is closer to the Air Army.

22.

Such items as gas masks, impregnated coveralls, impregnated capes, impregnated stockings, etc, are requisitioned by the Chief of the CW Service of the air regiment. He sends his requisition to the Chief of Military Depot OATB (Separate Air Technical Battalion), stating the number and the sizes of equipment needed. The Chief of OATB, however, does not fill this requisition in its entirety, but merely sends out the gas masks and holds the rest of the equipment for issue at the outbreak of war, or when there is a good indication that war is imminent. The OATB receives its supplies from the OATD (Separate Air Technical Division) and the OATD receives its supplies from the air army. The Chief of CW Service in the air army sends his requisition to the Chief of CW Service of the VVS who in turn forwards this requisition to that air army which, according to its records, can satisfy this requisition.

At the present time, the OATB and the OATD depots do not carry in stock such CW weapons as bombs or gases. In peace time only the depots of the Air Army will have such weapons in stock. Only when there is a definite danger of an enemy attack, or when the Soviet Union is planning to start a war, will the air army be instructed to make shipments of these weapons to the lower units.

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23.

details of the organization of the chemical warehouse of the air army. The air army does not have a separate chemical warehouse, but rather a warehouse in which there is a chemical section. This section carries everything that pertains to the CW Service. The Chief of the CW Service of the air army is responsible for this section. He has an assistant and several enlisted personnel . Their functions consist of maintaining proper records of all equipment and weapons, seeing to it that everything is properly stored, and preventing a catastrophy which could easily occur in such a warehouse of chemicals.

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24.

Air regiments will be supplied with CW weapons only on the basis of a decision made by a higher command.

25.

The Volsk Chemical Warfare Center is a CW school for officers of CW services in the Army, Navy and the Air Force. This school is under the control of the Directorate of Military Schools. There is a separate faculty for each of the three services mentioned above. The length of the courses for the Air Force personnel is one year; i e ten months

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of schooling and two other months spent in examinations and reassignments. The military ranks of Air Force chemical warfare students ranges from Junior Lieutenant to Captain, inclusive. CW Service officers who attended this school, the Army CW Service candidates rank up to and including Colonels.

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Candidates for this school have to be high school graduates to qualify.

the curriculum of this CW center, includes the following:

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(a) Political training - 80 hours
(b) Tactical training - Hours unknown
(c) Technical training - " "
(d) Chemistry training - " "
(e) Physical training - 80 hours
(f) Meteorological " - Hours unknown
(g) Drill (line training) " "
(h) Military directives & regulations - Hours unknown

26.

In an air regiment, the CW training consists of about 20 hours per year, given during the ground and combat training period. About 2½ hours of practice in the use of the gas mask, which each airman must always have, is also given. Within the 20 hours mentioned above is included training in the gas chamber which is conducted as follows: A gas chamber, consisting of two rooms, is prepared. The first room would have just enough gas to afford detection and the second room would have a full strength concentration. The troops are brought into the first room and the command is given to put on gas masks. Then they are marched into the second room with full concentration of gas where they remain 5 to 10 and sometimes more minutes. This is done once a year under supervision of the Regimental Chemical Warfare officer, and each soldier is later examined by a doctor.

27.

VAP-500 is an air spray tank with a 500-liter capacity; VAP-1000 is a spray tank with a 1000-liter capacity. AK-2 is a special ampule filled with incendiary liquid. AK-2u is the same thing only with a little larger capacity. During World War II these two items were used extensively by Soviet long-range aviation as incendiary bombs.

UKhAP-250 is a universal chemical spray tank with a 250-liter capacity; UKhAP-500 has a 500-liter capacity. DAP-100 is an air smoke tank with a 100-liter capacity. VAP-6M and VAP-4M are the improved type 6 and improved type 4 air spray tanks. ZAP-500 is a 500-liter spray tank containing two different liquids which ignite after mixing with one another and with the air as they are sprayed from this tank.

KhAB-25 is an air-chemical bomb weighing 25 kilograms. KhAB-200 is a 200-kilogram air-chemical bomb. KhAB-500 is a 500-kilogram air-chemical bomb.

All the CW weapons and equipment described above can be adapted for use by any type of aircraft.

28.

VAP-500 could not be used on Soviet jet fighter aircraft, but smaller tanks, such as VAP-250 could be used.

29.

30.

All military personnel are equipped with gas masks which they are required to have with them during working hours and readily available during off-duty hours. Other items of protective equipment available at all Soviet airbases are impregnated capes, impregnated stockings, impregnated coveralls, impregnated or rubber gloves, and rubber boots.

31.

Chemical bombs, mines, artillery shells or other containers of CW toxics, are marked with various combinations of colored markings, such as stripes, rings or crosses. These markings denote the type of CW agent used

32.

33.

In the event of chemical warfare, the Soviet Air Force will not designate any special units to carry out CW missions but will use its regular combat units.

34.

Long-Range Aviation personnel are subject to the same amount of CW training as any other VVS personnel. The organization of CW service is also the same as in any other unit.

35.

The SVVS Command has been giving very serious attention to CW preparations, particularly since 1949 (excluding the World War II period). From 1945 to 1949 CW personnel were utilized for other type of duties; however, this practice stopped in 1949, so that CW personnel could devote more attention to the service for which they were trained. The leaders of CW Service always say that the Soviet Union will never start chemical warfare, but it must be ready to retaliate in the event the enemy starts using poison gas first.

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36.

After World War II, VVS personnel became acquainted with bacteriological warfare through the Soviet press, classes during combat training and through lectures given by the senior medical officer of the air regiment. 50X1-HUM

Back in 1947 or 1948 the VVS began conducting BW classes but only devoted about six hours per year to this subject. 50X1-HUM

It was also stated that after World War II, a BW Department to prepare plans for conducting bacteriological warfare against the Soviet Union, 50X1-HUM

Soviet newspapers were used as source material by the doctors who conducted these classes. The leaders of these classes pointed out the necessity of being very careful because deadly bacteria can be contracted through water, raw vegetables or any other food. It can also be contracted by wearing affected clothing. "For this reason, it is very important that each soldier conduct himself strictly in accordance with official directives of the VVS." According to the lecturers, this bacteria can be spread by means of air-bombs, artillery shells and many other ways.

There was never anything said about the capability of the Soviet Union to retaliate in kind. the Soviet Union is working hard on the development of BW so that it can retaliate if the enemy starts BW first. the Soviet Union will never be the first to start either bacteriological or chemical warfare. 50X1-HUM 50X1-HUM

The large volume of Soviet propaganda regarding BW can be interpreted as follows: 50X1-HUM

(a) To arouse, in the people of the Soviet Union, a hatred by making them believe that is preparing a mass extermination of the Russian people. 50X1-HUM

(b) To show the Russian people that the western world, is preparing for a deadly war against the Soviet Union. Consequently, it is necessary for the Soviet Union to neglect the production of consumers' goods and concentrate more on the production of war materiel so that the people of the Soviet Union can be protected. 50X1-HUM 50X1-HUM

(c) If the Soviet Union is planning to start bacteriological warfare, the constant propaganda would make it easier to place the blame 50X1-HUM

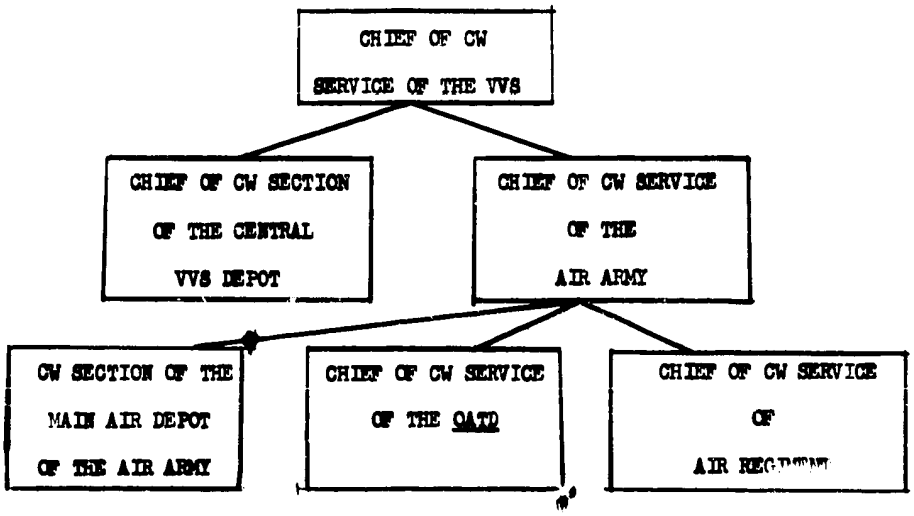
37. [redacted]

The present technique of defense against chemical warfare is divided in two parts; a collective defense and an individual defense. To the collective defense will belong such things as hermetically sealed shelters equipped with filtered ventilation.

The individual preservation of life is accomplished by means of gas masks and impregnated clothing described earlier in this report. A majority of the city population, particularly the factory workers, have personal gas masks. Even children, whose parents can afford to buy them, have gas masks.

There are two types of gas masks in the Soviet Union. One is the conventional filter type and the other is the type which requires the use of an oxygen tank. The oxygen tank-type of gas mask is safer as it eliminates the possibility of breathing improperly filtered air. On the other hand, the amount of oxygen these tanks can hold is limited to about two hours use.

The following are channels of CW Service organization in the Soviet Union.



The above diagram shows which of the VVS organizations have chemical warfare service. However, each of the "Chiefs" shown above is directly subordinate to the immediate commander; i e, commanders of their respective units. Consequently, the above chart is not to be construed as a chain of command, but rather a channel of chemical warfare information.

[redacted]

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